

and Nicolaieff barometers, by means of two barometers which he carried from Tiflis to Nicolaieff, and back again to Tiflis, with the result that the difference between the two barometers by which so many barometers are controlled, is only a tenth part of the difference as given by Prof. Wild, or the difference instead of being 0.028 inch, is only 0.003 inch. The comparison of station barometers is a laborious and delicate operation. If the instrument be a Board of Trade barometer, having an air-trap, any air lodged in it renders the comparison worthless; if not furnished with an air-trap, any air admitted into the tube vitiates the comparison; and if care be not taken in hanging the barometers or in timing the observations so as to secure that each attached thermometer truly gives the temperature of the whole instrument with its contained mercury, the comparison is not satisfactory.

THE FALL OF TEMPERATURE IN END OF OCTOBER.—The weather maps of Europe of October 27 and following days show remarkable changes in the distribution of the atmospheric pressure and changes of temperature consequent thereon. On the 27th pressures were much higher in the east than in the west of the continent, accompanied with south winds and temperatures considerably above the average of the season in Great Britain; in other words the meteorological conditions were analogous to those described in a recent number of NATURE (vol. xiv. p. 536), as characterising the warm weather from October 4 to 7. On the 28th, however, barometers began to fall in the extreme north of Norway. This depression and a general lowering of the barometer was propagated southwards over Eastern Europe, while at the same time barometers rose to a considerable height over Western Europe. The necessary result, as regards the British Islands, of this altered distribution of pressure was a change of wind from south to north and a fall of temperature from about 5° above the average on October 27 and 28, to about 5° below it on October 31 and November 1. In addition to the interest of this illustration from its bearing on the importance of a knowledge of the weather in the extreme north of Europe in connection with weather forecasts for Great Britain, it is also interesting as a type of those meteorological conditions to which some of our severe winter weather is due. Indeed, some of our severest winter storms of wind and snow have occurred with barometric depressions which have advanced from the Arctic Sea southwards over Europe; and they are peculiarly severe in these islands when the centre of the depression takes a course more to westward than that of last week, or when it passes to the south-eastward over the North Sea or over Denmark.

### NOTES

WE publish this week the complete Report of Capt. Nares on the Arctic Expedition, along with a new map showing in detail the various geographical discoveries made by the expedition, our map of last week being necessarily very general. We congratulate the Admiralty on the rapidity of the publication, and are glad to be able thus to place on permanent record the general report of the Commander of the expedition, both as to its work and its results. As we said last week, these results will be fully appreciated only when the various scientific reports are published. Of course various schemes have been proposed to accomplish the minor object in attempting to attain which our fearless men were baffled—the attainment of the Pole. A correspondent writes to us suggesting the use of a balloon to be inflated at the coal-bed in Discovery Bay, and crossing right over the Pole, about 1,000 miles, obtain a bird's-eye view of what is below. A correspondent in one of the daily papers advocates the use of steam, and that something like a tramway should be made to the Pole, the floe-bergs being tunnelled if necessary. Another of our correspondents endeavours to show that the ice-masses met with must have been pushed

over from the Siberian coast, though this seems somewhat inconsistent with the fact of the destruction of the Behring Strait whaling fleet by ice. But what do all these groping ideas point to but the adoption of Weyprecht's scheme, advocated by the German Government, and curiously enough only now finding its way into the daily papers, as something before quite unknown here, though we published it in detail a year ago. If we are not mistaken we shall have to thank both the successes and the failures of this expedition for opening up a new era in Arctic exploration. The following promotions for services rendered in connection with the Arctic Expedition have been made:—Commander A. H. Markham to be Captain; Lieutenants Pelham Aldrich, L. A. Beaumont, and A. A. C. Parr to be Commanders; Sub-Lieutenant C. J. M. Conybeare to be Lieutenant; Staff-Surgeon B. Ninnis, M.D., to be Fleet Surgeon; Surgeons E. L. Moss, M.D., and R. W. Coppinger, M.D., to be Staff Surgeons; Engineers D. Cartmel and James Wootton, to be Chief Engineers; Assistant Paymaster Thomas Mitchell to be Paymaster.

As we announced last week, Capt. Allen Young has returned with the *Pandora*. He was so beset with ice in about 78° N., that he was able to accomplish little, though he managed to deposit the letters and despatches which he took out for the expedition. Capt. Young found some Eskimo at the high latitude of 77° 12' N., who conducted themselves very well. They offered Capt. Young's party everything they had, and when asked what they would like to receive, the chief went off to the ship and selected a 15-foot ash oar and some gimlets. He wanted the oar for spear shafts, and the gimlets to bore ivory and bone in order to cut it. Some other useful presents were given them, and they gave in exchange some narwhal's horns, specimens of their pot stone cooking kettles, and of the iron pyrites used for striking fire. Capt. Adams, the well-known master of the whaler *Arctic*, has brought home with him to Dundee an Eskimo "Chief" named Alnack, thirty-eight years old, who has for years begged to be taken to England. His object in coming to Dundee is that he may get during the winter, knowledge that might be of much importance to the tribe of which he is chief. We hope he will take more kindly to our climate and habits than previous Eskimo visitors.

THE following is the award of medals for the present year by the Council of the Royal Society:—The Copley Medal to Prof. Claude Bernard, For. Mem. R.S., for his numerous contributions to the science of physiology; a Royal Medal to Mr. William Froude, F.R.S., for his researches, both theoretical and experimental, on the behaviour of ships, their oscillations, their resistance, and their propulsion; a Royal Medal to Sir C. Wyville Thomson, F.R.S., for his successful direction of the scientific investigations carried on by H.M.S. *Challenger*; the Rumford Medal to Mr. Pierre Jules César Janssen, For. Mem. R.S., for his numerous and important researches in the radiation and absorption of light, carried on chiefly by means of the spectroscope. The medals will be presented at the anniversary meeting of the Society on the 30th inst. It is hoped that the two eminent Frenchmen named in the foregoing list will be able to appear in person on the day appointed.

THE store-houses, workshops, and studies of zoology of the Jardin des Plantes, Paris, have been recently removed to a new and most commodious building in the rue Buffon, where there is ample space for scientific work of every kind. Plans have likewise been made for the erection of a large new building in front of the "Galerie," in order to give more space for the exhibition of the general collection of zoology.

RUSSIAN newspapers announce the death of M. Chekanoffsky, who, exiled in Siberia, has spent more than ten years in the

geological exploration of the country, and recently returned from his travels on the Olenek and the shores of the Polar Sea, to St. Petersburg, where he was engaged at the Academy in the description of his immense collections. He was found on October 10 dead in his room, and it is supposed that he poisoned himself.

THE Academy of Geneva, whose foundation goes back to the sixteenth century, to the time of Calvin and Beza, has for more than three centuries maintained a renown and a value far exceeding the dimensions of the small republic which glories in its prosperity. Five years ago, in consequence of the erection of large buildings for its use and of concomitant legislative decisions, it assumed the title of University, the National Council having decreed the creation of a Faculty of Medicine as an addition to those of ancient standing. Until now this new faculty existed only on paper, the buildings intended to receive it not having been erected. They have been recently finished; the professors have been chosen from the native medical men, to whom have been added some eminent foreigners—Professors Schiff, of Florence, Zahn, of Strasburg, and Laskowski, of Paris. An inaugural ceremony took place on October 26, when addresses were given by the President of the Council of State, the Rector of the University, and the Dean of the new Faculty. There are already fifty students, and the organisation of the new classes has been made on a scale entirely satisfactory.

THE *Norddeutsche Allgemeine Zeitung* states that Capt. Kielsen, of the *John Maria*, Tromsøe, has reached  $81\frac{1}{2}^{\circ}$  N. lat. between Novaya Zemlya and Spitzbergen, and found the sea free of ice. He discovered an island with a mountain 500 feet high, which he called White Island. He supposes that the ice-wall round the Pole was, at least this year, at a higher latitude, and that the Gulf Stream generally follows this direction.

THE following statistics with regard to the number of students attending German universities during the summer term of this year are taken from the just published *University Calendar* for 1876-7. Berlin—number of students, matriculated and unmatriculated—3,666, of teachers 193. The corresponding numbers in Leipzig were 2,803 and 155; Munich, 1,158 and 114; Breslau, 1,122 and 108; Göttingen, 1,059 and 119; Tübingen, 1,025 and 86; Würzburg, 990 and 66; Halle, 902 and 96; Heidelberg, 795 and 110; Bonn, 785 and 100; Strasburg, 700 and 94; Königsberg, 611 and 82; Greifswald, 507 and 60; Jena, 503 and 77; Marburg, 445 and 69; Erlangen, 422 and 55; Münster, 415 and 29; Giessen, 343 and 59; Freiburg, 290 and 54; Kiel, 223 and 65; and Rostock, 141 and 36. Of universities outside the German Empire, Vienna had 3,581 students and 247 teachers; Dorpat, 844 and 65; Graz, 804 and 88; Innsbruck, 570 and 67; Zürich, 355 and 78; Bern, 351 and 74; and Basel, 239 and 64.

IT is proposed by the Council of the Trades' Guild of Learning, in conjunction with the Committee of the National Health Society, to organise a course of twenty lectures on the "Laws of Health," to be delivered by W. H. Corfield, Professor of Hygiene and Public Health in University College, London, in the large room of the Society of Arts, John Street, Adelphi, W.C., on consecutive Saturdays, commencing November 11, at 8.30 P.M., excepting the following dates:—December 1 (Friday), February 1 (Thursday), March 1 (Thursday). There will be an interval of four weeks at Christmas, and three weeks at Easter. Certificates will be awarded to those who satisfy the examiner and who have attended not less than fifteen lectures out of twenty.

MR. McMANN writes that on p. 18, vol. xv. in, our notice of his method of comparing spectrum maps, E should have been G. The distance between B and G is not assumed equal to 100, he states, but is assumed equal to 1, and is divided into 100 equal parts,

IN a letter addressed to Dr. Andrews, Prof. Wartmann, of Geneva, states, with reference to the communication on Radiometers to NATURE of Oct. 19, that Prof. Frankland reproduces precisely the conclusions which Prof. Wartmann gave at one of the conferences at South Kensington in the month of last May. The results were published in No. 222 (June 15) of the *Archives des Sciences Physiques et Naturelles*. In the first note which Prof. Wartmann published (*Archives*, No. 219, March 15) he said (p. 315) that by making two calorific sources act simultaneously on the opposite faces of the same disc, we obtain an equilibrium when the intensity of the pressures is in the inverse ratio of the absorbing power of each face. The experiments, which he made in spring, during very favourable nights, on the nullity of the action of the lunar light, completed the demonstration. It is the calorific radiation which is the cause of the movements of the radiometer.

AT the recent meeting of the German Association of Naturalists and Physicians, Dr. Hermes described some interesting characteristics of the young gorilla in the Berlin aquarium. He nods and claps his hands to visitors; wakes up like a man and stretches himself. His keeper must always be beside him and eat with him. He eats what his keeper eats; they share dinner and supper. The keeper must remain by him till he goes to sleep, his sleep lasting eight hours. His easy life has increased his weight in a few months from thirty-one to thirty-seven pounds. For some weeks he had inflammation of the lungs, when his old friend Dr. Falkenstein was fetched, who treated him with quinine and Ems water, which made him better. When Dr. Hermes left the gorilla on the previous Sunday the latter showed the doctor his tongue, clapped his hands, and squeezed the hand of the doctor as an indication, the latter believed, of his recovery. In fact the gorilla is now one of the most popular inhabitants of the Prussian capital. For Pungu, as the gorilla is called, a large glass palace has been erected in the Berlin Aquarium in connection with the palm-house.

THE *Kölnische Zeitung* of November 4, reports on the discovery of an ancient burial ground, during some excavations made near Rauschenburg on the Cologne-Minden Railway. It appears that a number of antiquities were found, and while the vases amongst them, as well as a number of objects found in these vases are of undoubtedly Roman origin, it is doubted that the people buried there, and whose skeletons were found, were of Roman nationality. It is believed at present that they were Teutons of the third or fourth century who lived in friendly intercourse with the neighbouring Romans, and had obtained from them the objects mentioned. A definite opinion would be premature until the whole of the ground is excavated, and a scientific investigation has been made of all that is found. Amongst the objects discovered recently, we may mention a well-preserved vase of *terra sigillata*. On its floor there is still a small remainder of the linen containing the bone-ashes; the vase is 20 cm. broad, and 12 cm. high; it shows an ornament which is of decidedly Roman origin. Amongst the bone ashes in its interior there were two bronze nails, several molten pieces of bronze, and remains of a beautifully ornamented ivory comb. Another vase, quite full of bone ashes, and roughly worked of coarse clay, consists of two parts almost equal, of which the lower one is 25 cm. broad, and 16 cm. high, while the upper one is 27 cm. broad, and 18 cm. high. Amongst the bone ashes it contained were found several molten pieces of bronze, the remains of a burnt ivory comb, and a piece of some handsome ornamental object made of bone. Round this urn several smaller vessels were placed; they were of ordinary gray clay, two of them of somewhat finer black clay. One of them was empty, another one contained ten little pieces of clay, about 3 cm. thick, and perforated, all of different shapes, they had very likely been worn as beads on a string round the neck. There was also a little tablet of bronze in this vessel. One of



the black vessels seems to have served for incense, the other one may have served the same purpose, but being shaped like a three-armed Roman lamp, it is probable that it served as support for three lamps. Of the different pieces of undoubtedly Roman vases that were found besides the above, one shows the figure of a hare, and another that of a running hound—both in relief.

A WISH, which was expressed last year at the International Geographical Congress held at Paris, will be realised in January next. From that date a monthly geographical review will be published there, at the Librairie of Ernest Thonin, and edited by Ludovic Drapeyron, Professor at the Lycée Charlemagne, and member of the Académie. This *Revue Géographique* will contain reports of all work done in connection with geography; the investigation of the various methods now employed in teaching geography, as well as topography, will form some of the principal subjects of the *Revue*. Besides theoretical original papers, it will publish the latest reports of the different travels of discovery going on in various parts of our globe, criticism on new geographical works, biographies of celebrated geographers, &c. The *Revue Géographique* is not to be the organ of petty party-spirit, but of all those who see in geographical science one of the principal means of breaking the reign of empty rhetorics and scholastics. Besides geographers' and geologists, the editor invites for co-operation the representatives of all historic sciences in the widest sense of the term—palæontologists and ethnographers, as well as archaeologists—all those, therefore, who by the application of geography in historic research, wish to open new fields for social science in general.

THE University of Zurich has announced that in future, like the German universities, it will grant the doctor's degree only after an oral and written examination.

MR. BRYCE M. WRIGHT, of Great Russell Street, has procured one of the finest and most complete specimens known of the Plesiosaurus from the Lias of Whitby, which is open to the inspection of the public until the 12th inst. The neck is 6½ feet long, and the entire animal nearly 17 feet. The whole of the vertebrae from the head to the tip of the tail are complete without the slightest break, which gives some idea of the entirety and preservation of the animal. It was procured from the cliff in which it was found in about twenty pieces, but after three weeks' incessant work Mr. Bryce Wright has mounted it in such a manner that one could scarcely believe a bone had been disturbed. Mr. Bryce Wright, has, we believe, secured this specimen for a foreign institution.

THE additions to the Zoological Society's Gardens during the past week include a Puma (*Felis concolor*) from Santa Fé, presented by Miss Brassey; two Wild Swine (*Sus scrofa*) from Cuba, presented by Mr. J. Alfonso de Aldama; a Persian Gazelle (*Gazella subgutturosa*) from Persia, presented by Mr. T. Fowler; two Senegal Touracous (*Corythaix persa*) from West Africa, a Sun Bittern (*Eurypyga helias*) from South America, a Scarlet Ibis (*Ibis rubra*) from Para, a Ring-necked Parrakeet (*Falcornis torquata*) from India, two Black Tortoises (*Testudo carbonaria*), a Common Boa (*Boa constrictor*) from Panama, a Sulphur-breasted Toucan (*Ramphastos carinatus*) from Cartagena, deposited; an Andean Goose (*Bernicla melanoptera*) from Chili, purchased.

## SOCIETIES AND ACADEMIES

### PARIS

Academy of Sciences, October 30.—Vice-Admiral Paris in the chair.—The following papers were read:—Letter of Mr. Hind communicated by M. Leverrier, on the intra-Mercurial planet.—Study of the organs of reproduction in ephemera, by M. Joly.—On a new electric lamp devised by M. Sabloschhoff, by M. Denayrouze. The carbons are fixed parallel, and the short interval between them is occupied by an insulating substance which disappears along with them (as the wax of a candle disappears from the wick). Various insulating substances are

used, sand, glass, mortar, lac, &c. The simplest and cheapest is a sand of pounded glass.—On the distribution of magnetism on the surface of magnets, by MM. Tréve and Durassier. The more a steel is carburetted, the more is the magnetism condensed towards its extremities; the less carburetted, the more is magnetism spread out equally over its surface. The authors are having a series of steels prepared by hardening with cold water, and they seek to formulate a simple law establishing the relation between the coercitive force and the proportion of carbon.—On the deterioration of vineyards of Côte-d'Or, by M. du Mensel.—M. Wery submitted an apparatus for ventilating apartments and mines, or increasing the draught of chimneys.—On the rotatory polarisation of quartz, by MM. Soret and Sarasin. They extend their observations to the ultra-violet rays more refrangible than the line N, and also make more precise measurements. The results are tabulated.—On the laws of vibratory motion of diapasons, by M. Mercadier. The number of vibrations of a prismatic diapason is proportional to its thickness and inversely as the square of its length. The isochronism of vibrations is not absolutely rigorous; the duration of the period depends on the amplitude and the temperature. In using a diapason as chronograph or interrupter, the instrument will not give results quite identical unless you operate at the same temperature and give the vibrations the same amplitude. If (as is generally the case) one does not need complete identity and large amplitudes, then provided an amplitude of 2 to 3 mm. be not exceeded, and one operate at temperatures little different, one is certain to have the same number of periods per second to nearly 0.0001.—Chemical reactions of gallium, by M. Lecoq de Boisbaudran. *Inter alia*, further experiment confirms the opinion, that oxide of gallium is more soluble than alumina in ammonia. Carbonate of soda only precipitates indium after gallium. Chloride of gallium is very soluble and deliquescent. A slightly acid solution of it dried at a mild heat, gives needles or crystalline lamellæ, which act strongly on polarised light. Sulphate of gallium is not deliquescent.—On terephthalaldehyde, by M. Grimaux.—On the simultaneous formation of two trioxanthraquinones and the synthesis of a new isomer of purpurine, by M. Rosenstiehl.—On the electric apparatus of the torpedo (third part), by M. Rouget. In the electric discs, besides ramifications of nerve-fibres and the reticulated nervous plate, one finds only vessels and cell-elements, fibrillæ and membranes belonging all to the connective tissues. M. Rouget offers a theory as to the mechanism by which the nervous elements produce electrical effects.—On the phenomena of division of the cellular nucleus, by M. Balbiani.—Variations of the electric state of muscles in tetanus, produced by passage of a continuous current, studied by means of the induced contraction, by MM. Morat and Toussaint. In such tetanus the induced contractions (shocks, isolated or associated into a tetanus of short duration) are to be regarded as accidents, though the comparison of the two traces (inducer and induced) indicates but imperfectly the cause of these accidents. The electric state of the muscle is sensibly uniform during the whole duration of the contraction.—On some parts relating to nutrition of the embryo in the egg of the hen. The blastoderm derives its elements from the yolk, whereas at the beginning of incubation, and at least till the time of complete closure of the amnion, the embryo is developed at the cost of the albumen.—On the influence of poisoning by the bulbous agaric on glyceremia by M. Oré.—On the employment of picric acid in treatment of wounds, by M. Curie.

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